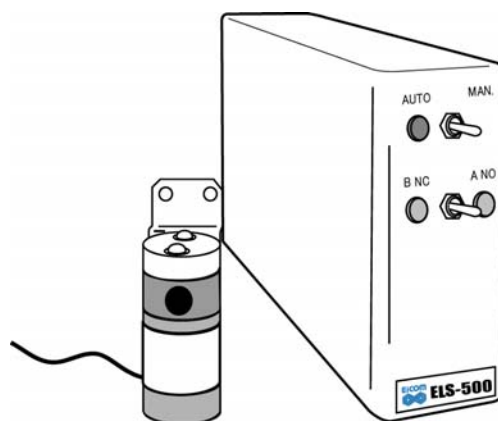


# MOBILE PHASE SWITCHING VALVE FOR HTEC-500

## ELS-500

### User Manual



**Do not use the ELS-500 on humans or animals, except laboratory animals, for the purpose of basic scientific research.**

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ELS500MAN\_080

## Introduction

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Thank you for purchasing the Mobile Phase Switching Valve for the HTEC-500. The ELS-500 is the switching valve which is developed and produced for exclusive use with the HTEC-500 HPLC-ECD System. This device allows the user to switch between two types of mobile phases at the head pump of HTEC-500. The timing of the valve switching can be done either manually or by external signal input.

We insist that users observe the following procedures in order to prevent accidents:

- 1) Be sure to read and understand this manual completely prior to operating the ELS-500.
- 2) Use the ELS-500 only for basic research purposes. Do not use on humans or animals, except for laboratory animals.
- 3) Follow all warnings listed herein very closely.
- 4) Do not alter the ELS-500.
- 5) Never attempt to repair or dismantle the ELS-500 on your own.







**WARNING** This device has been produced for experts who have knowledge of chemical analysis and handling research reagents. Failure to follow instructions may lead to poor quality data and could result in a safety hazard (such as fire, electric shock, injury or other damage). **DO NOT OPERATE** the ELS-500 until reading and understanding this instruction manual completely.

## I. Parts List

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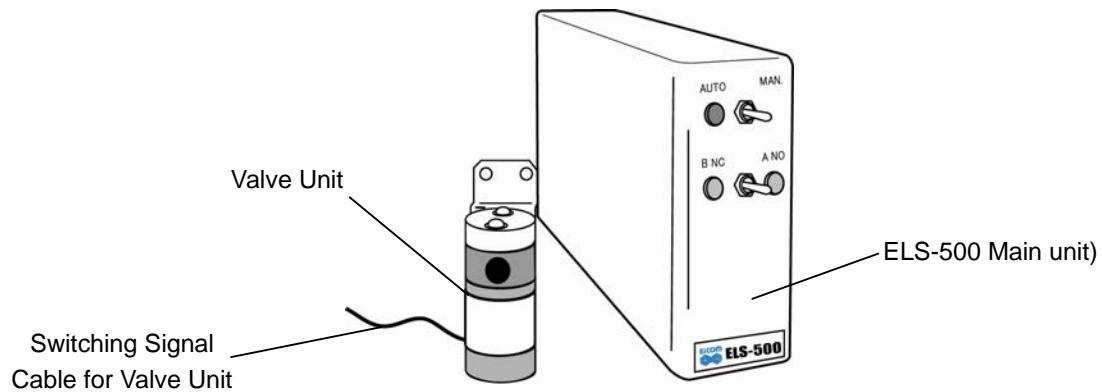
- 1.1 Prior to operation, please ensure all of the following parts are included and that the equipment has not been damaged in shipping.**

Part	Quantity
Manual	1
ELS-500 (Main unit)	1
Valve Unit	1
Tefzel Tube (0.8mm ID) 150mm A NO Line	1
Tefzel Tube (0.8mm ID) 140mm B NC Line	1
Tefzel Tube (0.8mm ID) 75mm COM Line	1
Tefzel Tube (0.8mm ID) 900mm for Mobile Phase	2
Flat Hex Fitting for Valve Unit 	3
Ferrule for Valve Unit 	3
Flat Finger-tight Fitting for Degasser/3 Way Connector 	5
Ferrule for Degasser/3 Way Connector 	5
Signal Cable (For connecting the EPC-500 to the ELS-500)	1
Ground Wire	1
Power Supply Cable	1

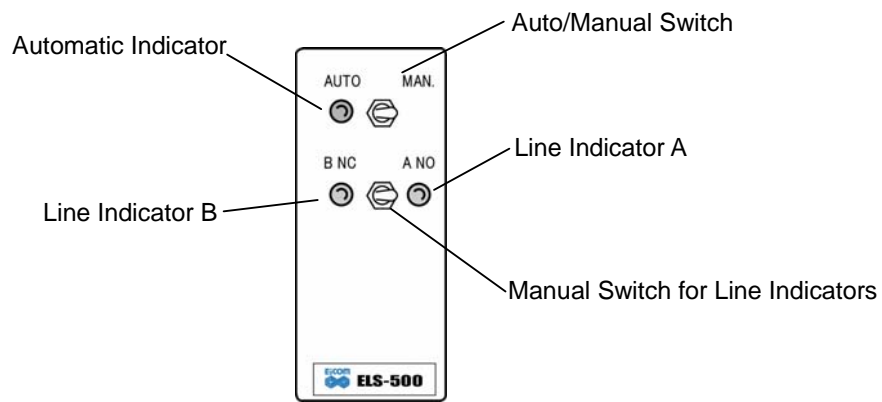


**WARNING** The ELS-500 and parts are not made for use in any other device except the HTEC-500 HPLC-ECD system.

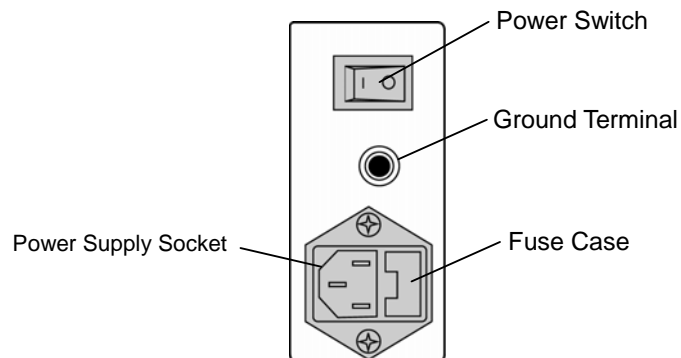
## 1.2 Parts Name and Function



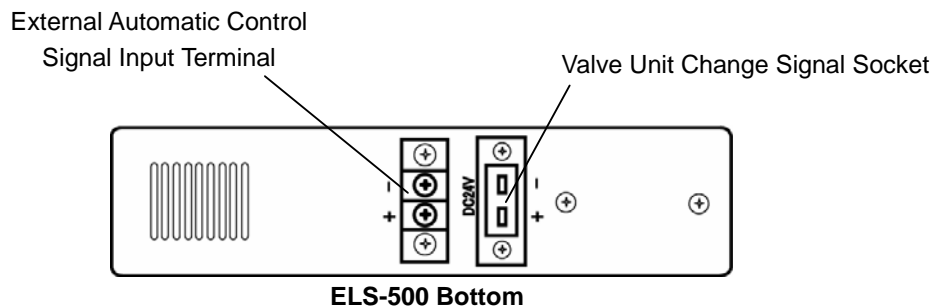
**WARNING** The pressure limit of this Valve Unit is 200 kPa(0.2 MPa) and **CANNOT** be used with ANY line that exceeds a pressure of 200 kPa.



ELS-500 Front

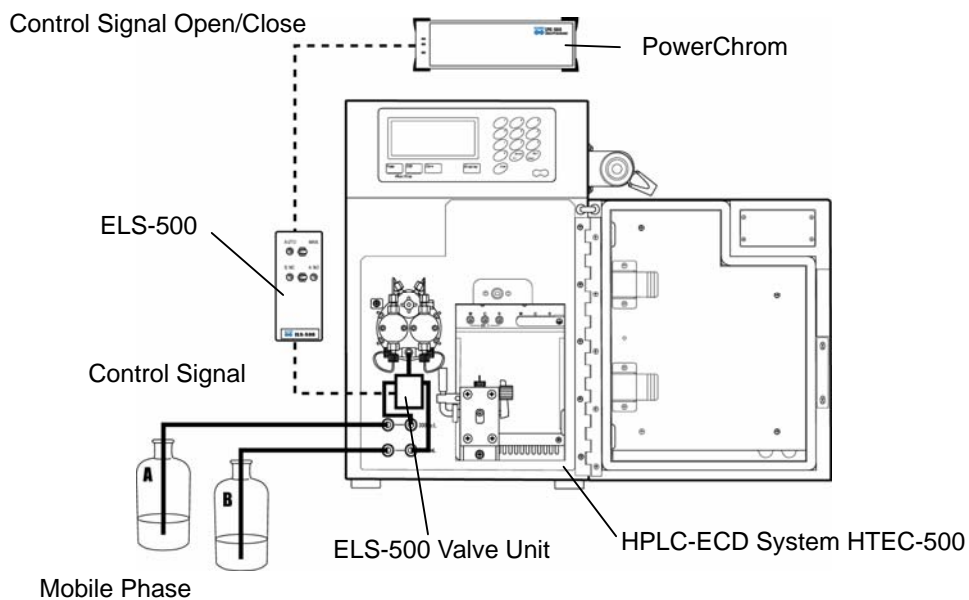


ELS-500 Back



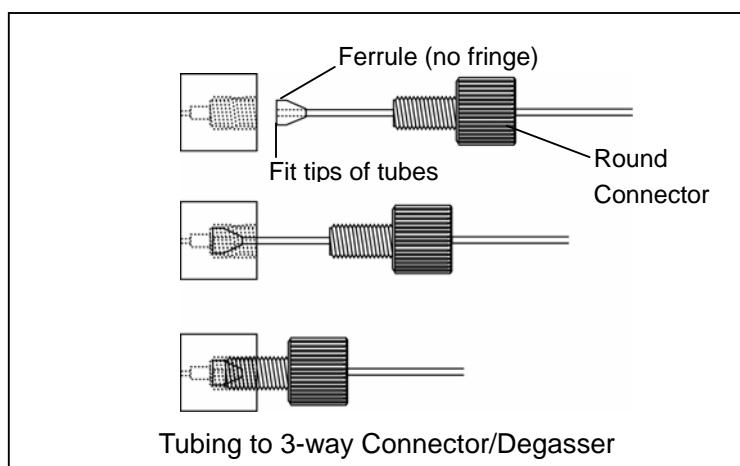
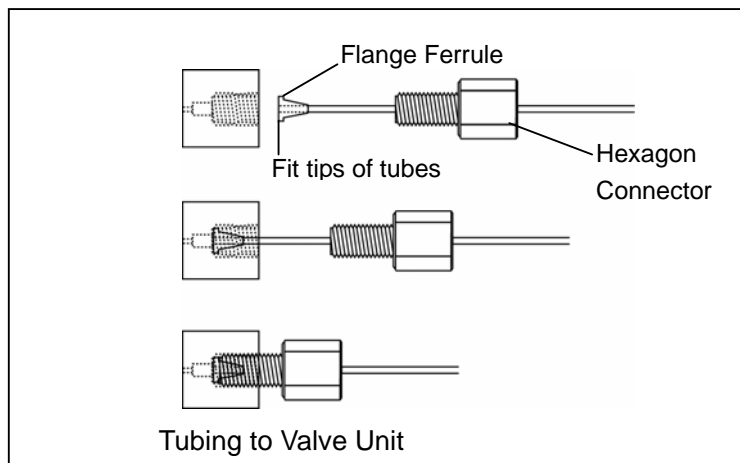
### 1.3 Connecting to the HTEC-500

- There are two degasser loops in the system which allows the mobile phase lines A and B to be connected to the degasser in two ways, either before or after the switching valve.
- The ELS-500 controls the valve unit.
- The timing of the switching can either be controlled by ELS-500's manual switch or can be programmed via external control signal using Eicom's PowerChrom EPC-500.



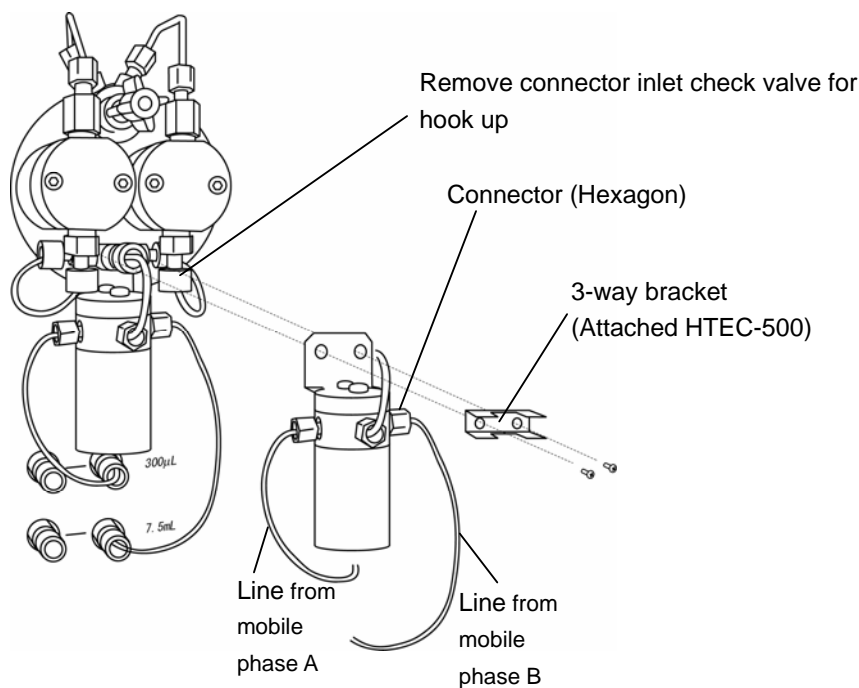
**Analysis System Configuration**

- 1) Flat Fitting Hold connector (Hexagon) connects the tubing to the valve unit. To connect tubing to other devices, use Flat Fitting Hold connectors (Round).



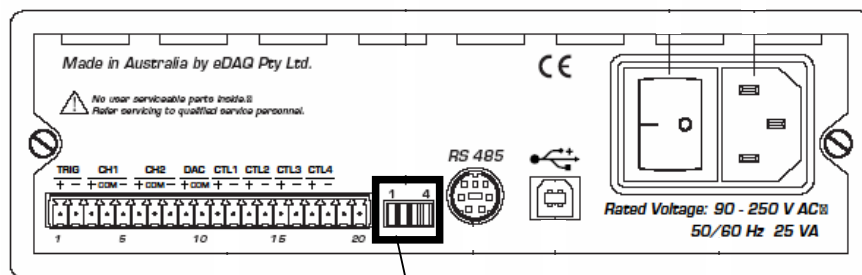
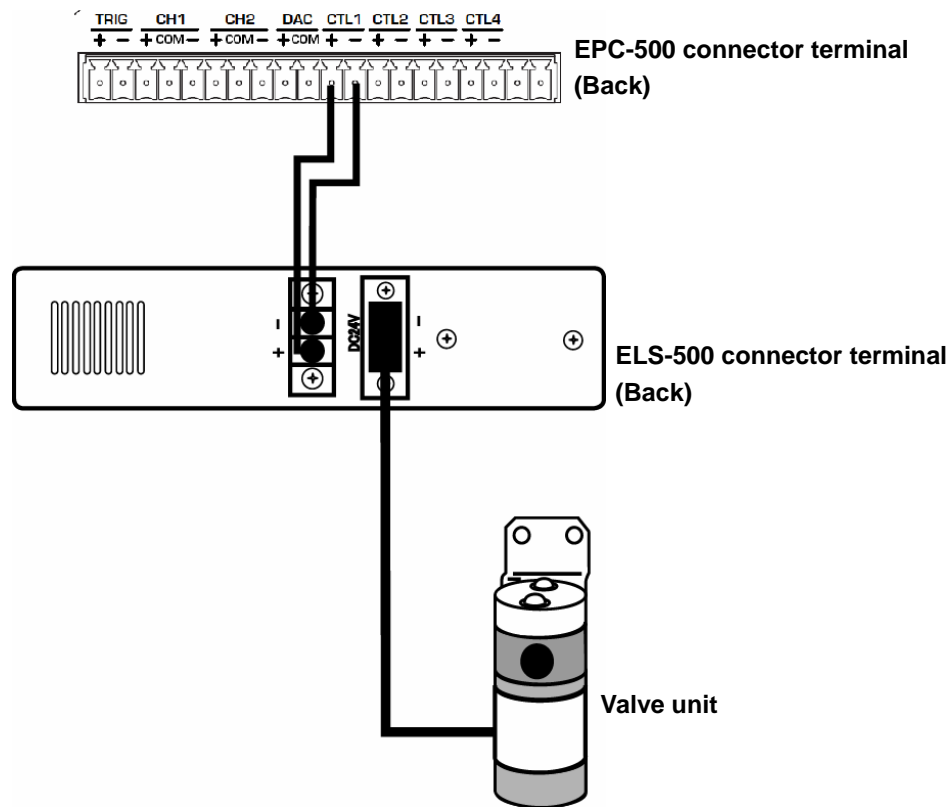
- 2) Locate the pump head inlet of the HTEC-500, and remove the connector from the check valve
- 3) Pull the 3-way connector gently out of its bracket.
- 4) Loosen the 2 screws on the 3-way connector bracket and remove the bracket.
- 5) Connect the outlet port on the valve unit to the center outlet of the 3-way connector.
- 6) Attach the valve unit under the pump, using the 3-way connector bracket and screws.

- 7) Push the 3-way connector gently back into the bracket.
- 8) Connect the inlet check valve to the pump head.
- 9) Connect the line from mobile phase A to one of the inlet ports on the 3-way valve.
- 10) Connect the line from mobile phase B to the other inlet port on the 3-way valve.



- 11) Connect the signal wire from the valve unit to the socket in the bottom of the ELS-500.
- 12) Connect terminal +/- of the bottom of ELS-500, to the terminal CTL 1 +/- of the PowerChrom EPC-500.
- 13) The external device signal control of the ESP-500 must be set to OPEN/CLOSE on CONTACT CLOSURE.
- 14) Remove the pin of the external signal terminal from the back of the ESP-500.

Please note that the method of switch the signals depends of the type of control device. For the EPC-300, external device signal control is set by the DIP switch.



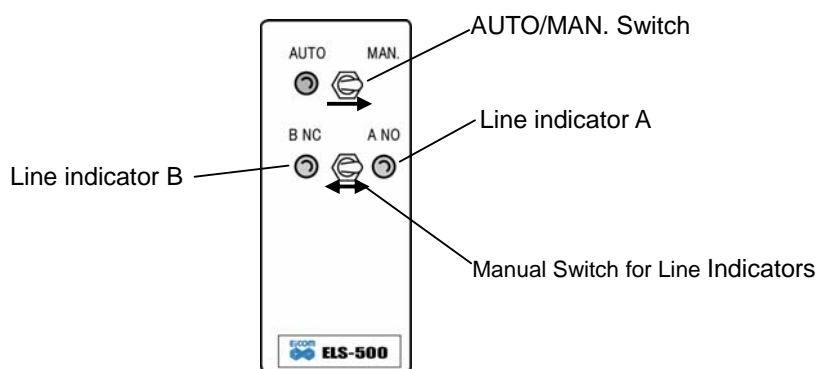
NO.1 PIN MUST BE PULLED OUT

## II. Parts List

### 2.1 Manual Switching

Prior to beginning analysis, prime Mobile Phases A and B up to the pump head using the manual switching mode.

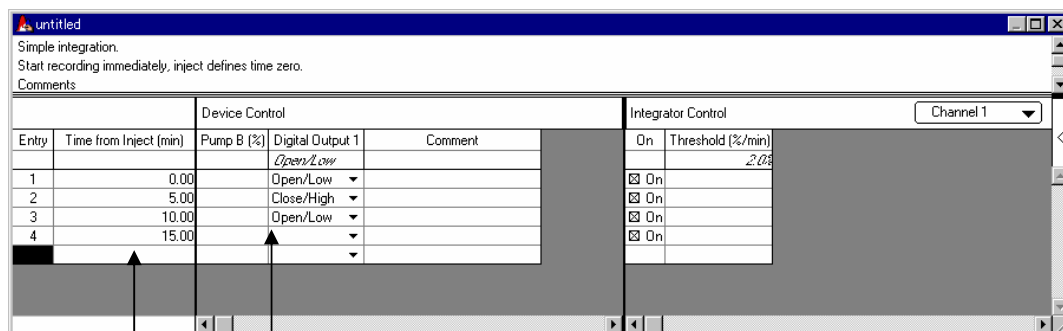
- 1) Turn on the ELS-500, and set AUTO/MAN. switch to MAN. (manual)
- 2) Select A NO (Mobile Phase A) or B NC (Mobile Phase B) by using the manual switch for line indicators.
- 3) Confirm correct Mobile Phase selection by checking the correct indicator light is on.
- 4) Aspirate from the pump head to draw the Mobil Phase into each line respectively.



### 2.2 Automatic Switching

- 1) Set automatic line indication switch using the programming analysis method in PowerChrom EPC-500.

**【Example:** First inject Mobile Phase A. After 5 minutes, switch to Mobile Phase B. After 10 minutes, go back to Mobile Phase A, keep on Mobile Phase A for 15 minutes**】**



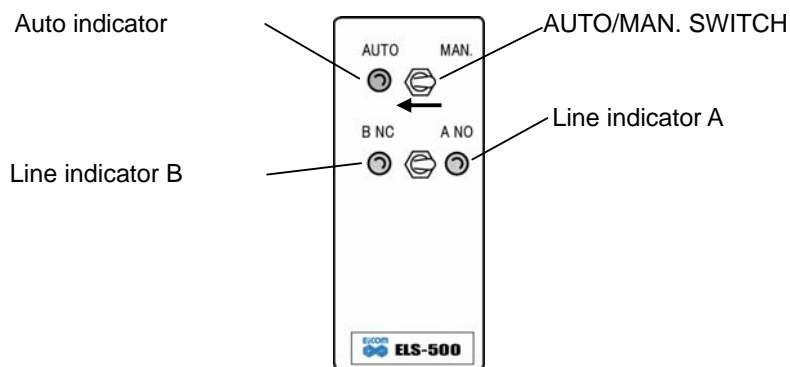
Set injection time

Input (Open/Close) in Digital Output 1



In this case, Mobile Phase A (A NO) is set by Open and Mobile Phase B (B NC) is set by Close. (The default setting of EPC-500 is Open for (A NO)). Mobile Phase A is set to time 0:00 upon sample injection.

- 2) Save the Method file in PowerChrom.
- 3) Turn on ELS-500, set AUTO/MAN. switch to AUTO
- 4) Confirm correct Mobile Phase A is selected by checking the correct indicator light is on. If Line Indicator B is on, the EPC-500's OPEN/CLOSE signal setting is not working properly. Confirm the external signal terminal of the ESP-500 by verifying that the pin has been removed, according to the instructions in step 14 of section 1.3 of this manual.



- 5) Start analysis with the above method file in EPC-500's Run Table, or install the method file into a sequence file.

## 2.3 Powering Down

To shut down the machine, simply turn off the power switch of the ELS-500.



**WARNING** Do not leave machine powered on while set to Mobile Phase B (B NC). The electromagnetic valve is always drawing an electrical current while the machine is set to Mobile Phase B (B NC). If left powered on for long periods while set to Mobile Phase B, the ELC-500 will be damaged.

### III. Specifications

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Flows	Qty. 2
Change-over switch	Manual/Automatic(External signal input)
External digital input	Open Collector
Diversion valve	Low Voltage Electromagnetic Valve
Valve pressure limit	200kPa
Wetted material	Daiflon/Tefzel/Perfluor
Applied voltage	AC 100V 50/60Hz 10VA
Weight	1 kg

### IV. Limited Warranty

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**Warranty Period:** One year from the original purchase date as defined by the date of your Eicom invoice. (Except for the valve unit – which is warranted for 6 months from the purchase date as defined by the date of your Eicom invoice)

**Warranty Information:** During the warranty period, this Eicom product is covered by a limited liability warranty covering manufacturer defects. In the case that the machine is defective, it will be repaired or replaced free for charge.

**Void of Warranty:** The manufacturer's warranty will be voided under the following conditions:

- ① Failure to follow instructions and warnings relating to product's use.
- ② Repair or alteration by anyone other than Eicom.
- ③ Damage during shipping or transit, or any other accidental damage.
- ④ Damage due to use with hazardous voltages.
- ⑤ Damage due to improper connection of equipment.
- ⑥ Damage due to any act of God.
- ⑦ Any other inappropriate usage of parts or consumables that is not authorized by Eicom.

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